

USDA
NATURAL RESOURCES
CONSERVATION SERVICE

DELAWARE CONSERVATION
PRACTICE STANDARD

WATERING FACILITY

CODE 614
(Reported by No.)

DEFINITION

A device (tank, trough, or other watertight container) for providing animal access to water.

PURPOSES

To provide watering facilities for livestock and/or wildlife at selected locations in order to:

- protect and enhance vegetative cover through proper distribution of grazing;
- provide erosion control through better grassland management; or
- protect streams, ponds and water supplies from contamination by providing alternative access to water.

**CONDITIONS WHERE PRACTICE
APPLIES**

This practice applies to all land uses where there is a need for new or improved watering facilities.

CONSIDERATIONS

Topography should be evaluated to minimize trail erosion and flooding erosion from tank

overflow.

Watering facilities should be accessible to small animals. Escape ramps for birds and small animals should be installed.

Adequate protection for livestock during the winter should be considered.

This practice has the potential to affect National Register listed cultural resources or eligible (significant) cultural resources. These may include archeological, historic, or traditional cultural properties. Care should be taken to avoid adverse impacts to these resources. Follow NRCS state policy for considering cultural resources during planning.

CRITERIA

**General Criteria Applicable to All
Purposes**

A trough or tank shall have adequate capacity to meet the water requirements of the livestock and/or wildlife. This will include the storage volume necessary to carry over between periods of replenishment. Animal water requirements can be obtained from the NRCS Engineering Field Handbook, Table 11-1.

Where water supplies are dependable and livestock are checked daily, troughs with little water storage capacity may be used. Troughs or tanks must provide the daily water requirement of the livestock and provide access to the entire herd within a short period of time.

The site shall be well drained; if not, drainage measures shall be provided. Areas adjacent to the trough or tank that will be trampled by livestock shall be graveled, paved, or otherwise treated to provide firm footing and reduce erosion. Design of the protective surface around the trough shall be in accordance with NRCS Conservation Practice Standard 561, Heavy Use Area Protection.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Automatic water level control and/or overflow facilities shall be provided as appropriate. Valves or pipes shall be protected by shields or covers to prevent damage by livestock. Overflow shall be piped to a stable or suitable point of release. The trough and outlet pipes shall be protected from freezing and ice damage. Freeze-proof troughs or electric heaters may be used.

When a roof is placed over the trough to provide shade, the roof shall be designed for appropriate snow and wind loads and shall be durable to withstand anticipated livestock and wildlife activities.

All materials shall have a life expectancy that meets or exceeds the planned useful life of the installation. Common construction materials are reinforced concrete, steel, fiberglass, plastic and wood. All designs shall meet the industry standards for the material being used. Generally applicable design requirements and procedures can be found in the documents referenced at the end of this standard.

Concrete structures shall be constructed from a concrete mix producing a minimum compressive strength of 3,000 psi at 28 days. Galvanized steel tanks shall have a minimum thickness of 20 gauge. Plastic and fiberglass structures shall be made of ultraviolet resistant materials or shall have a durable coating to protect the structure from deterioration due to sunlight.

PLANS AND SPECIFICATIONS

Plans and specifications for installing troughs and tanks shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. If the trough and/or tank is a component of a system that includes additional conservation practices, the information necessary to construct these additional practices will also be conveyed on the plans.

Development of plans will be guided by Engineering Field Handbook, Chapter 5, and

shall be in accordance with National Engineering Manual, Parts 541 and 542.

OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan specific to the type of installed trough or tank shall be provided to the landowner. The plan shall include, but not be limited to, the following provisions:

1. check for debris, algae, sludge or other materials in the trough which may restrict the inflow or outflow system;
2. check for leaks and repair immediately if any leaks are found;
3. check the automatic water level device to insure proper operation;
4. check to ensure that adjacent areas are well protected against erosion;
5. check to ensure the outlet pipe is freely operating and not causing erosion problems; and
6. prepare guidance for winter weather, such as adding material in the storage area to allow for ice expansion without damage.

Algae and iron sludge accumulation should be addressed in areas with water quality that is known to cause problems. Chemicals such as copper sulfate and chlorine can be recommended as needed, as long as local rules and regulations are followed.

SUPPORTING DATA FOR DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

Planning Information, Field Data and Survey Notes

1. Location of the watering facility. Also note the location of the practice on the conservation map.

2. Description of the objectives of the practice, including the desired functions which the watering facility is expected to provide.
3. Soils investigation logs and notes, as appropriate for site conditions and the proposed design.
4. Topographic survey of the site, as appropriate for site conditions and the proposed design.
4. Timber, National Design Specification for Wood, American Forest and Paper Association
5. Concrete, ACI 318, American Concrete Institute
6. Masonry, Building Code Requirement for Masonry Structures, ACI 530, American Concrete Institute

Design Data

1. Location map with the site identified.
2. Soil survey map with the site identified.
3. Computations establishing the design capacity of the watering facility.
4. A set of plans and specifications for the watering facility including water level control and overflow control as appropriate.
5. Description and extent of the protective surface around the trough.

Construction Check Data/As Built Plans

1. Check notes recorded during and after completion of construction showing the as-built measurements of the practice.
2. Red line the construction plans to indicate the construction's conformance to the design.
3. Sign and date check-notes and plans by someone with appropriate approval authority. Include statement that practice meets or exceeds plans and NRSC practice standards.

REFERENCES

1. Engineering Field Handbook
2. National Engineering Manual
3. Manual of Steel Construction, American Institute of Steel Construction